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As one of its major activities in carrying out its purpose, the Society publishes a monthly magazine, the Canadian Geographical Journal, which is devoted to every phase of geography—historical, physical and economic—of Canada, of the British Commonwealth and of the other parts of the world in which Canada has special interest. It is the intention to publish articles in this magazine that will be popular in character, easily read, well illustrated and educational to the young, as well as informative to the adult.

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The Eastern Panther is Not Extinct

by W. AUSTIN SQUIRES

THERE ARE still panthers in New Brunswick. This was made public by the Hon. R. J. Gill, Minister of Lands and Mines, in January, 1948. Naturalists had previously agreed that, except for a small population of a southern subspecies in Florida, the eastern panther had been exterminated at least sixty years ago. The last ones in southern Ontario and Quebec were killed before 1847 so it is not surprising that Charles G. D. Roberts' references to panthers in New Brunswick were considered pure fiction.

Tracks of a small panther trotting and showing tail drag. Man's glove gives relative size. Taken at Maugerville January 26, 1948.

B. S. Wright

This big cat in several subspecies and under many names formerly ranged from the Atlantic to the Pacific and from Alaska to Patagonia. In the eastern forest it was usually referred to as the panther, painter or catamount. In Alberta and British Columbia the western race is called cougar, puma or mountain lion. The eastern race was found originally throughout the eastern United States being very common in Pennsylvania and New York. Farther northeast it was very rare in Maine but no naturalist, until very recently, ever risked his reputation by stating that it was or had been in New Brunswick.

Yet it was present all the time, had undoubtedly been in this province before the first white man arrived, and is still there, probably more abundant than ever before. The animal has been so elusive that no naturalist ever saw one and the New Brunswick woodsmen, who have seen them often, usually call them Indian Devils or catamounts. Whenever a naturalist heard about someone seeing an Indian Devil he marked it down as another Canada lynx or perhaps a wolverine both of which are referred to as Indian Devils. Incidentally both of these are now much rarer in New Brunswick than the panther, the wolverine being almost undoubtedly extinct there.

Much of the credit for producing scientific proof of the survival of the eastern panther must go to Mr. Bruce Wright, Director of the Northeastern Wildlife Station at Fred-

ericton. In the 1930's he became very much interested in the stories he heard of encounters with big cats and Indian Devils and was finally convinced that many woodsmen had actually seen the eastern panther. Zoologists at Ottawa and Washington were very sceptical of his reports. If a panther had been seen in New Brunswick it must have escaped from captivity. Finally, in March, 1947, Jim Robinson, a guide who had reported panthers to a sceptical Game Division many times, showed Mr. Wright the tracks of an adult male, a female, and one cub in a family party not far from the new Fundy National Park and he was able to photograph them. The forepaw of the male measured four and one-half by five inches and the marks where the long tails had dragged in the snow were clearly visible identifying the animals as panthers, the only long-tailed cats which ever occurred in eastern North America. It was the morning after a snowstorm and the tracks were not more than seven hours old. Tracks were also found in mud in July, 1947, and plaster casts made from these were identified at the Smithsonian Institution in Washington. This evidence of its presence in New Brunswick is sufficient even though no specimen is yet to be found in any museum collection.

This does not mean that none of these cats has ever been killed. Dr. Abraham Gesner stated in his history of the province published in 1847 that "the Felis concolor, panther, painter, or catamount — better known in the province as the Indian Devil . . . are very rare, yet sometimes a single skin is brought into the market". This is a very definite statement but it appeared in a rare book seldom seen by naturalists.

About 1895 Mr. Frank Gibson of Springhill, near Fredericton, set a bear trap and caught an "Indian Devil". The skin was used as a mat for several years and a number of witnesses will still testify to its tan colour and two- to three-foot tail.

The Saint John Telegraph-Journal for November 24, 1923, recorded the shooting of a panther in Northumberland County the previous week. Mr. Collingwood Fraser, foreman on a lumbering operation at the headwaters of the Sevogle River, saw what he took to be a wildcat. He fired and wounded it. Immediately it charged and was stopped at less than five feet when killed by a second bullet. Witnesses said that the animal measured about four feet in length with a tail nearly as long.

Evidence that other panthers have been killed in New Brunswick during the last fifty years is not so definite but the following accounts suggest that several have been.

Tracks of small panther, left, and an otter, Maugerville, January 27, 1948. The otter was evidently pursued and escaped down a hole in the ice. B. S. Wright

Panther tracks in St. John County, March 29, 1947. Six-inch ruler alongside.

B. S. Wright

About 1904 two trappers caught an unfamiliar animal and sent the skin to a fur company where it was identified as a cub cougar or mountain lion.

A clergyman residing in Havelock is said to have shot a large cat about twenty years ago which he identified as a panther. The skin was later sold to two American hunters.

A resident of St. George recently reported having seen two large cat skins with long tails hanging in front of a fur dealer's shop in that town in 1935. He also told about two hunters who when hunting in October, 1947, halted near a small stream to watch for deer when they heard one running towards them. It leapt across the brook and while they watched a large cat with a long tail stopped on the farther bank.

One evening in June, 1947, a Saint John man driving to his summer home rounded a turn about ten miles from the city on the main highway to Fredericton—and could scarcely believe his eyes. In the middle of the road walking slowly across was a big long-tailed cat—a panther; and actually in the midst of a summer colony.

A forest fire near Lepreau in October, 1947, drove several species of wild animals out of the woods, among them two panthers. Three men including a game warden were within one hundred yards and in a position where they were able to identify them easily.

Shortly after the Hon. Mr. Gill announced that there were panthers in the province a woman telephoned Mr. Wright from Maugerville to tell him that one was crossing an open field there at that instant. When he reached the scene the panther, of course, was gone but its tracks were in the snow very plain to see.

The writer also saw what must have been a panther near Maquapit Lake, Queens County, in August, 1929. A large cat walked out of the woods at a distance of about three hundred yards and lay down at the side of a meadow. After a few minutes, becoming uneasy at the sight and sound of people in the distance, it slunk back into the woods.

An especially well-substantiated sight record of a panther refers to one seen about fifteen miles from Fredericton on the road to Minto on July 15, 1948. It crossed ahead of a car driven by Dr. Butterwick, Provincial Veterinary Pathologist, accompanied by Dr. Barette, District Veterinarian, and stopped at the side of the road. They halted their automobile within thirty or forty feet whereupon the panther bounded up a cut-bank and disappeared into the woods. The tail was reported nearly three feet long and of uniform size throughout its length, the ears short and rounded, and the whole body heavy set especially in the frontquarters.

These are just a few examples selected from a great many reports of encounters be-

tween game wardens, guides, trappers, hunters, and ordinary citizens and these big cats in the New Brunswick wilderness, in farm-communities, and close to residential districts—only circumstantial evidence until Mr. Wright produced photographs and plaster casts officially identified as panther tracks.

Here in New Brunswick, possibly overflowing into Maine and Nova Scotia, is the only known surviving population of the eastern panther, *Felis concolor couguar* Kerr, or another unnamed subspecies. Among all the reports referring to this animal there are no well authenticated accounts of attacks on cattle, horses or sheep. Deer kills have been noted but with the large deer population now in New Brunswick the panthers may furnish just the necessary controlling factor to prevent a population explosion in our deer herds and the consequent damage to the forests such as has occurred in other parts of Canada and the United States.

The panther is a very curious animal and will follow hunters in the woods. Its tracks have also been found where it has circled farm buildings during the night. It is mostly this curiosity and an indifference to man bred from the absence of hunting pressure which has given rise to so many sight records in New Brunswick. In the west the cougar is seldom seen unless treed by dogs and on the whole it is also very secretive in the east travelling over many roads and paths unsuspected by its human neighbours.

The eastern panther has never proved a dangerous animal in New Brunswick in the past and the mere publication of its presence will not make it any more dangerous in the future. In this part of Canada it should be viewed as a subject for conservation and study. Apparently the only really successful way to hunt the western race is with specially trained dogs. If the New Brunswick government does not give the panther complete protection, hunting with dogs should be forbidden so that this remnant of a noble race of predators may have at least a sporting chance for continued survival.

A western panther or mountain lion. A full grown adult will have a total length of 6 to 8 feet or more and weigh from 100 to 200 pounds.
National Parks Service

Milford Sound. Lion Peak, left, and snow-covered Mount Pembroke (6,710 ft.) centre.

Operation Fiordland
A New Zealand Expedition (Part I)

New Zealand Government photographs by K. V. Bigwood

FROM January to early May in 1949, New Zealand's little-known south-western Fiordland National Park was the scene of the biggest and most efficiently planned wild-life and scientific expedition ever undertaken in that country. First suggestion for this "Operation Fiordland" came from American naturalist Colonel John K. Howard, of the Harvard Museum of Comparative Zoology. This museum wanted him to study the herds of wapiti or elk (*Cervus canadensis*) which have grown up in this distant land since their introduction from Wyoming 43 years ago. Nowhere else in the world have wapiti so thoroughly established themselves under conditions so different from their native American habitat.

An expedition to New Zealand's wapiti country could not usefully be made by one man; it is largely unexplored and unpopulated, sketchily-surveyed and almost virgin mountain and forest. An offer by the New Zealand Government to join forces with Colonel Howard was accepted and the enterprise grew into a full-scale expedition, with many scientists taking part.

The objective was to make an ecological survey—that is, a study of the interrelationships of animals and plants with each other and with their environment—to help the government in framing a wild-life policy for this untamed area. Such a policy would take into account all possible interests, the forests, the animal, bird and fish life, as well as the provision of tourist facilities.

From their study, the New Zealand scientists hope to evolve techniques for the solution of wild-life problems in other parts of their country. Their "Operation Fiordland" covered about 100,000 acres, only a small corner of the 2,500,000 acre National Park, embracing the whole of this picturesque Fiordland.

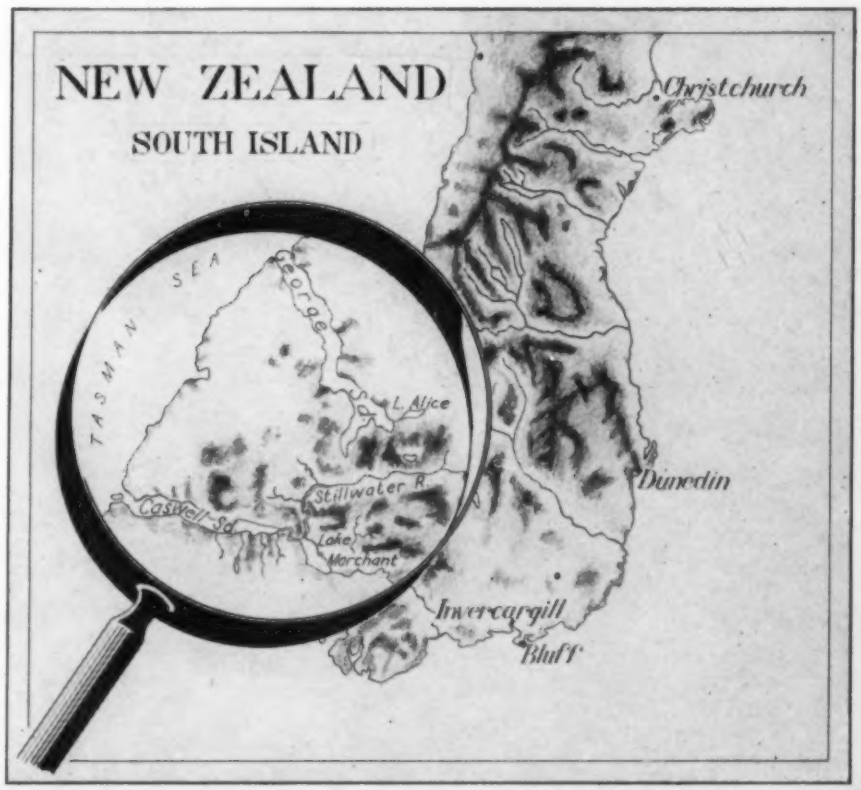
Colonel Howard was assisted in his study of the wapiti by the prominent American wild-life expert and wapiti authority, Dr. Olaus J. Murie, director of the Wilderness Society of America. Dr. Murie was scientific leader of the expedition, with New Zealand's leading government botanist, Mr. A. L. Poole, as his deputy.

By mid-May the field work was completed, and the score or so of botanists, biologists, ornithologists, zoologists, entomologists, foresters, surveyors and others had returned from their researches and specimen gathering. They then set to work on the study and correlation of findings as a preliminary to the publication of detailed reports.

New Zealand's Dominion Museum at Wellington was the base for this scientific work. There Dr. Murie, with help from the museum's director, Dr. R. A. Falla, who also took an active part in planning the expedition, prepared his wapiti and red deer heads and skins for shipment to America. Later they will be returned to New Zealand.

Dr. Murie will complete his comparative study of wapiti and red deer in the United States. His interest has been not only in finding out how the American wapiti has acclimatized itself in New Zealand, but in the possibility of its inter-breeding with red deer. New Zealand's Fiordland is the only area in the world where the two species range together. Already Dr. Murie goes so far as to say that he has found considerable evidence of inter-breeding.

This, then is the scientific aspect of "Operation Fiordland". But for many people the main interest lay in its pioneering and expeditionary character. The operation covered an isolated mountain area between two fiords, Caswell and George Sounds, and inland to Lake Te Anau and had to be planned and executed with all the care needed for putting a military task force into the field.



Main base for the expedition was Bluff, southernmost port in New Zealand. The second base was at Milford, north of George Sound.

The expedition's first view of the country in which it was to operate came as the *Alert* headed east from the Tasman Sea into Caswell Sound (above). This part of the west coast — New Zealand's Fiordland — is cut by deep fiords or sounds, some more than twenty miles long; most are about two miles wide. Rugged bush-clad mountains rise steeply from the water for thousands of feet. The bush cover grows to the 3,500 foot level, above which peaks are tussock covered or bare, often coated with snow. Between the fiords and inland the mountain country is wild and largely unexplored.

The *Alert* anchored off the rocky beach at the head of Caswell Sound and stores were rowed ashore (left). The first camp was set up in the beech forest which comes almost to the water's edge and radio communication was established with a powerful station near Bluff. Radios on the *Alert* and, later, at the inland base camp, also kept in touch with the Bluff station, which relayed weather reports. Between camps, small army type sets were used.

The 76-foot diesel launch *Aleri*, a former naval craft, kept the expedition supplied, making fortnightly runs between Milford and Caswell Sound. Stores and mail were brought in and scientists, specimens and mail taken out.

The beach camp was set up in the forest which in some places was so dense that trees had to be felled to make room for the tents (below). The advance party then cut a trail for two miles inland, along the lower reaches of the Stillwater River to Lake Marchant, where a tented depot was set up. Massive moss-covered silver beeches (*Nothofagus menziezii*) were the main trees and ferns of all types, often shoulder high, made up the undergrowth. Another tree, not quite as common as the beech, was the Southern Rata (*Metrosideros umbellata*) which bore red flowers. The prolific growth of moss is due to the heavy rainfall which averages from 250 to 280 inches a year in Fiordland. In the early part of the year, during the course of the expedition, heavy rain is usual on most days.

About three miles upstream from Lake Marchant depot the base camp was established, on the north bank about twenty feet above the Stillwater River (left). Sleeping tents each housed three men and contained a wood stove brought from America; in addition there were cook houses, laboratory, stores and radio tents. A small generating plant provided electricity for lighting and charged radio batteries.

The photograph above shows the Stillwater River one mile upstream from Lake Marchant. The lower bush-covered point is called Christmas Hill, but the other peaks are unnamed. The boat trip across the northern end of Lake Marchant and into the Stillwater River was parti-

cularly fine. Rugged mountains climb sheer to several thousand feet, the forest thinning only as the peaks are reached. Dense beech woods come to the river's edge. The river is clear and deep; it carries away no topsoil and is discoloured to a dark brown by rotting vegetation.

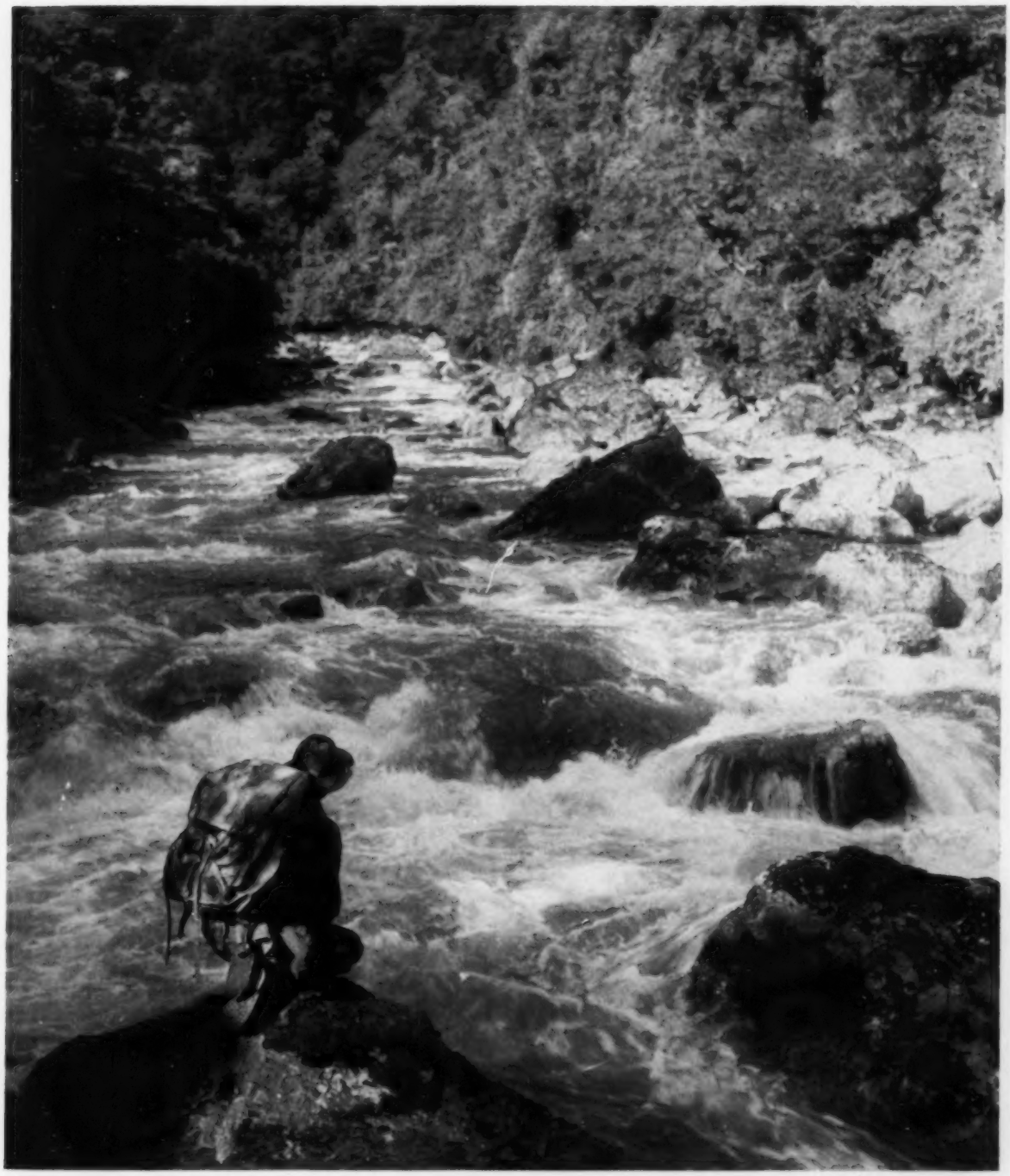
On February 12th, the base camp was badly flooded when an unusually heavy rainfall followed twenty-three consecutive days of normal rain. The river rose 25 feet and swept through the camp to a depth of about three feet. Some gear was moved to safety, the radio transmitter was lashed to a tree, and some of the men had to spend an unpleasant night up trees. A break in the weather saved the situation and within a few days the flood slowly receded. The picture (middle, right) shows the advance party drying out clothes and bedding after the flood and making the Stillwater River base camp ready for the arrival of the scientists.

Towards the end of February the first scientific group arrived and the real work of the expedition got under way. The field work was carefully planned to ensure best use of the time available and best coverage of the area from three forward camps. The photograph at the top shows K. Myers (left) going over some detail on a map with Dr. Murie, scientific leader of the expedition. On Dr. Murie's left are Colonel Howard, Donald Murie, J. Luttrell, and B. Wisely, New Zealand Government biologist.

Above the base camp the Stillwater River was not navigable and all supplies for the advanced camps had to be carried inland by pack. Some supplies were dropped at one camp by aeroplane. The photograph at bottom (right) of the Stillwater just above the base camp shows the shoals and debris which prevented the small boats going farther up-stream.

A clearing in the forest near the base camp. At left are the slopes of Mary Peak North (4,000 feet), with Mary Peak South in cloud.

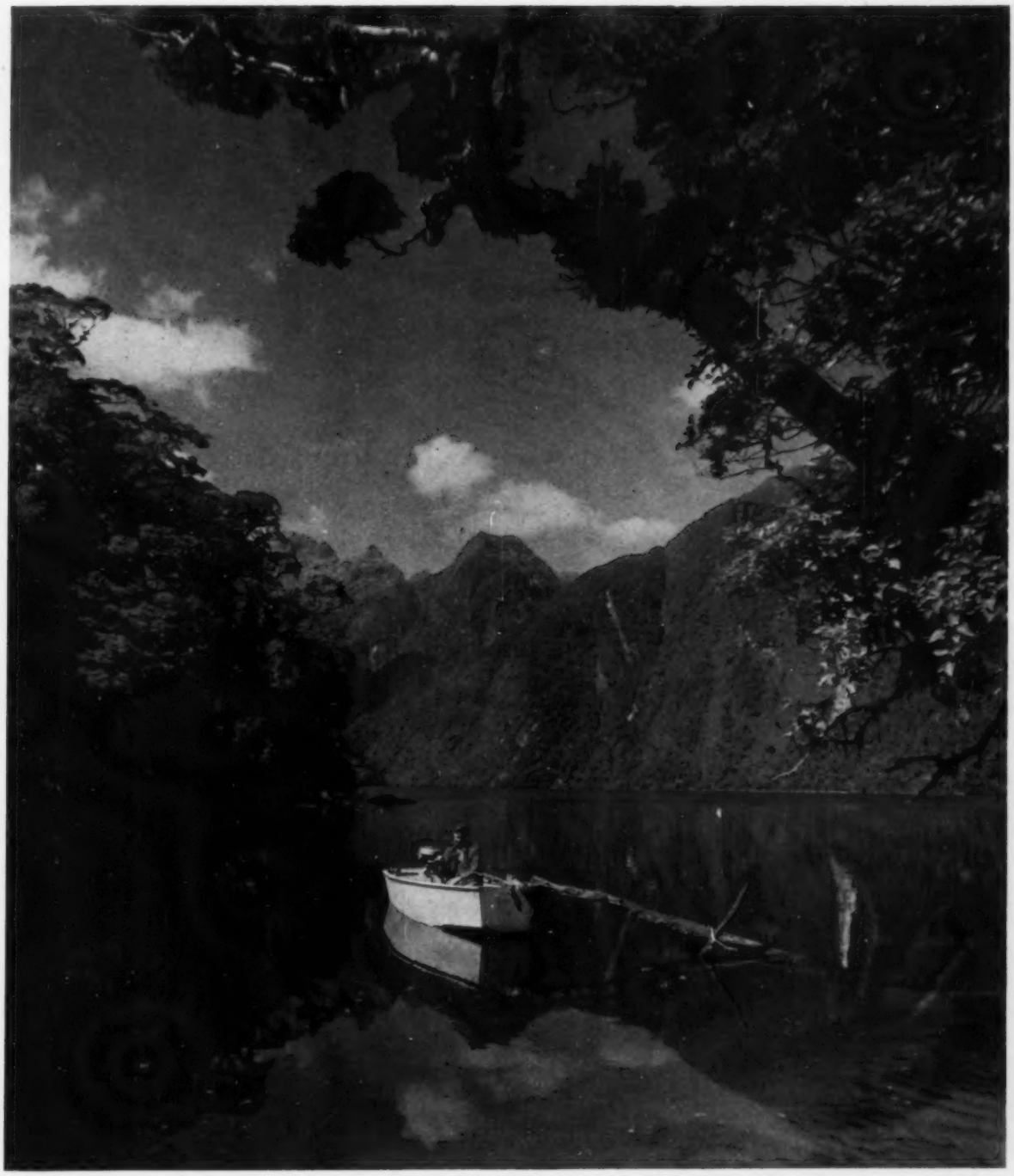
Difficulties of the terrain had to be considered just as carefully as preparation for scientific work in the preliminary planning. Another major problem was the constant rain. During ten weeks of field work, there were about three weeks of fine days; two weeks of intermittent or light daily rain, and about five weeks of days when the



The Stillwater is aptly named in its reaches above Lake Marchant but from the lake to Caswell Sound it is a series of tumbling rapids.

rain was really heavy, often confining the men to their tents. Frequently the clothes of the field workers were wet for days running and on returning to base camp they slept in damp bedding. In spite of this, all members of the expedition were free from colds during their stay in Fiordland, evidently having carried in no common cold germs.

The kind of forest, predominantly beech, in which members of the expedition spent much of their time. The trees have coatings of mossy growth, and under foot are ferns and often a carpet of spongy moss. In the foreground (above) are clumps of a common ground fern (*Blechnum discolor*) which is plentiful in the Fiordland area. This fern is not eaten by deer or wapiti though they like another forest floor fern, the *Polystichum vestitum*. Trails were cut and packmen carried in all equipment in 60 or 70 pound loads.



Lake Marchant, looking southeast. In a small clearing, a mile from the lake up Large Burn River, three Maori adzes were found, one of greenstone, about 10 inches long, and two smaller ones of basalt. This find was the first evidence that Maoris had visited this particular part of Fiordland. Since the site was not suitable for permanent habitation and was not on their known routes across the mountains, the adzes probably belonged to a Maori party in search of greenstone, which is found farther north.

Study of the wapiti and red deer and collection of selected specimens was soon begun, with the help of skilled deer hunters. The photograph above shows Dr. Murie (standing) and party crossing Lake Marchant on the lookout for wapiti. Mount Pluvius (4,770 feet) is the domed peak in centre background. Some of the party examined the hills above the timber line (top right) on the slopes of Saddle Hill, above the Stillwater Valley.

Left, a red deer hind (*Cervus elaphus*) shot in a swampy backwater near Lake Marchant, and, right, a fine wapiti stag (the original species was *Cervus canadensis nelsoni*) secured on the Large Burn River. The wapiti is larger than the red deer and his colourings make him fairly easy to pick out against the bush or tussock background. In summer the wapiti is reddish, and in winter a tawny grey. The red deer is of red colouring in summer, more grey in winter.

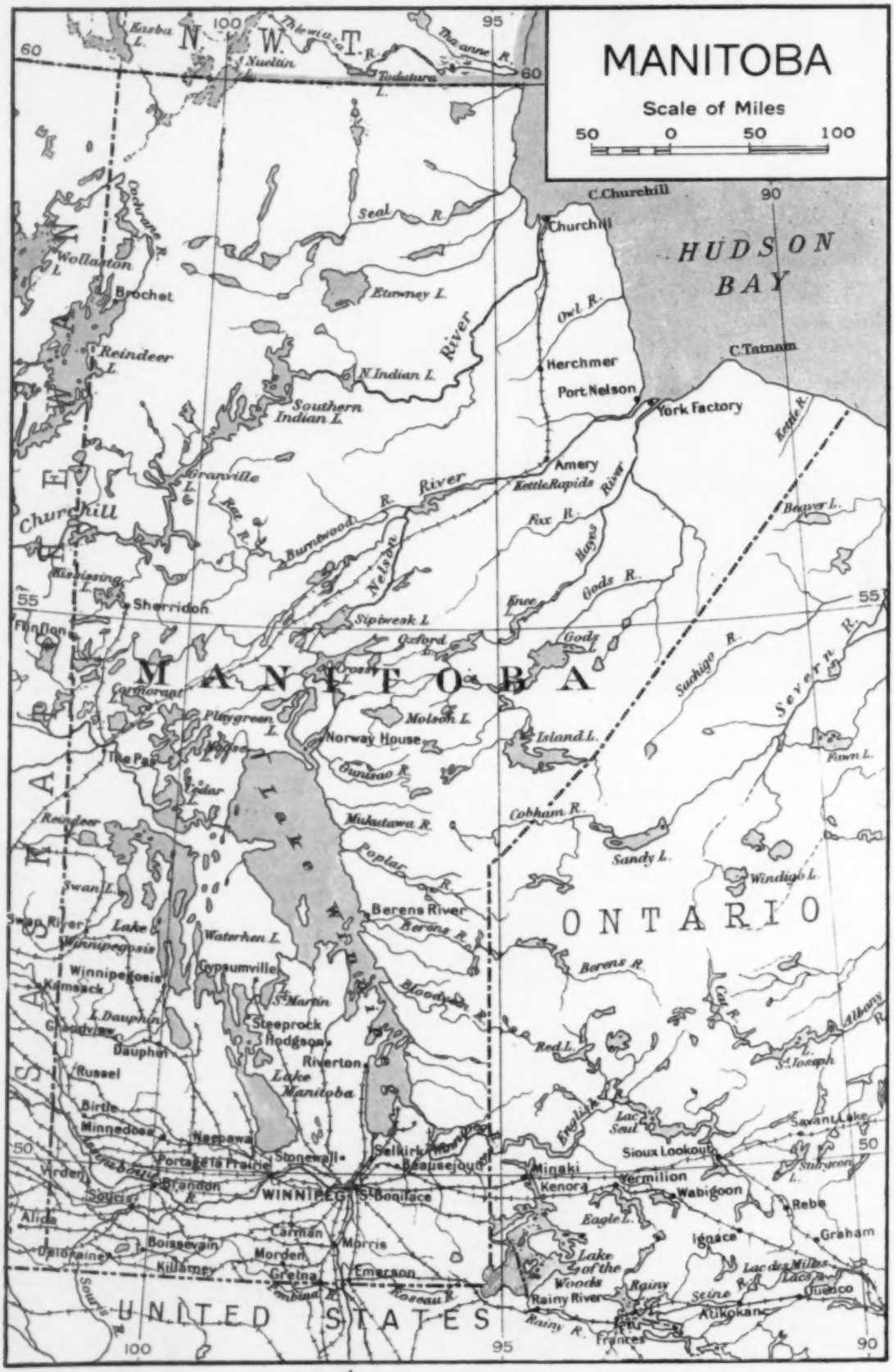
It was found that the wapiti had spread from George Sound, where the first eighteen or twenty head were released in 1905, south to Caswell Sound and inland over the mountains to Lake Te Anau. A close study was made of the wapiti in its adopted habitat, from lowlands to highlands. From an advanced camp, hidden in the bush, in the upper reaches of the Stillwater River, Dr. Murie was able to observe the grazing habits of the wapiti on the grassy flats near the river. The photograph above shows one of the huntsmen shooting a wapiti in the high country.

Left:—This picture shows the bark-eating habits of wapiti and deer, and the harm done to forest trees. Although most

damage is done by eating small seedlings, they also feed on the bark of some trees, this one, a pokaka or *Elaeocarpus hookerianus*, being a favourite. The scars indicated that its bark had been eaten in three successive years.

Heads of wapiti and red deer with fine specimens of antlers were collected. Fiordland's damp climate prevented the efficient drying of heads for later study, so the specimens were boiled to remove the flesh from the heads. The heads were then bound in moss for packing and shipment, as shown in the picture above.

Right:—One of the scientists examines and measures teeth in an old skull.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Portage Avenue in Winnipeg, Canada's fourth largest market.

Manitoba—Province of Industry

by VICTOR J. MACKIE

Manitoba today is a province of industry as well as an important agricultural area.

The factory has supplanted the farm in the value of total production, and almost equals the farm as a source of employment. This transformation in what has long been known primarily as an agricultural province has come about within the comparatively short space of the past two decades. On the rich fields of that prairie province, the farmer still continues to occupy his important place as a primary producer. But the integration of diversified agriculture and of industry has been achieved, providing the stability so essential for continued industrial growth.

Manitoba's emergence as an industrial area is a fascinating story. It is a story made possible by the courage and vision of the province's people. The industrial plant had its roots in pioneer days, but the rapid growth of recent years has been speeded by the hot-house atmosphere of the twentieth century. Manufacturing in Manitoba during the past half century has grown at such a rate that today it is nearly fifty times greater than it was in the late 1800's. The modern plants, equipped with intricate machines manned by skilled labour, are a far cry from the pioneer industries of the early Selkirk settlers who ground grain, spun yarn, cut timber and tanned hides in their

humble homes in a strictly local and domestic way. But it was these same settlers who laid the crude beginnings for Manitoba's industrial development.

The province's industries now enlist the intelligence, skill and ability of all races making up its mixed population. The combined output of its many industries runs close to $500,000,000 a year in gross value. Manitoba, the gateway to the West, proudly labels itself the "province of industry". It can make that boast, because it now turns out of its factories nearly one-third of all goods manufactured on the prairies.

It was the fur trade that brought the white man to live in the vast untamed expanse of territory south and west of Hudson Bay. The traders followed the explorers, men who were looking for the elusive northwest passage to India and the Orient. The Earl of Selkirk made good his dream of a colony in the Canadian west. His Scottish settlers who had suffered the hardships of pioneering this country and of surviving its hard winters, refused to be driven from their lands by the fur traders. Eventually the settlement, established in 1812 on the banks of the Red and the Assiniboine Rivers, became a thriving community. Retired Hudson's Bay Company officers built fine homes along the river bank and a community of all classes was established. Commercial enterprise had got its start, and industrial development had begun.

The traders who built their shanties and their white painted frame stores outside Fort Garry, and their mills and warehouses for steamboat trade on the banks of the Red, laid the foundations for the Dominion's fourth largest city—Winnipeg. It was the main centre of population on the prairies then, as it still is today. It was the centre of manufacturing in the West.

The railway reached the Red River, from the south, late in 1878. Winnipeg's population was growing, and more and more industries were established. In 1881 a bridge was built carrying the steel right into the heart of the expanding settlement. The first Canadian Pacific Railway transcontinental train passed through the city on July 1, 1886. Railway development brought a rising tide of immigrant families from Eastern Canada, from the United States, the United Kingdom and Europe, attracted mainly by the rich lands available to the settler either by homesteading or by purchase. Winnipeg was booming, and Manitoba's population was increasing rapidly.

The growth of manufacturing has had four periods of development. First there were the home industries of the earliest settlers, when hand-tools were used. In the second period, between 1880 and 1920, factories became a central part of the economy. The years between 1921 and 1939 were characterized by all the problems that accompany the course of the business cycle from one extreme to the other. The fourth period is the decade of great and well-sustained industrial development from 1940 to 1950.

Statistics reflect the long-term growth of Manitoba's industrial life. Records of early days show that in 1880 there were 344 manufacturing plants. They were capitalized at $1,383,000, and they employed nearly 2,000 people who turned out products with a gross value of close to $3,500,000. As the years passed the industrial output increased, stimulated by such factors as the coming of the railways, the influx of capital from the United Kingdom and United States, and by the development of hydro-electric power. In Manitoba, as elsewhere in Canada, manufacturers have passed through different periods of severe strain. Those who survived such testing periods demonstrated a capacity for business and a spirit of bold initiative that enabled them to grasp the new and greater opportunities that lay ahead. During the prosperous period of the late '20s, industrial activity made giant strides and by 1927 the value of manufactured products exceeded the value of agricultural production.

The past decade has been Manitoba's greatest era of industrial expansion. There are now nearly 1,600 manufacturing establishments in the province. When the amazing array of things made in Manitoba are added together, they are found to have an estim-

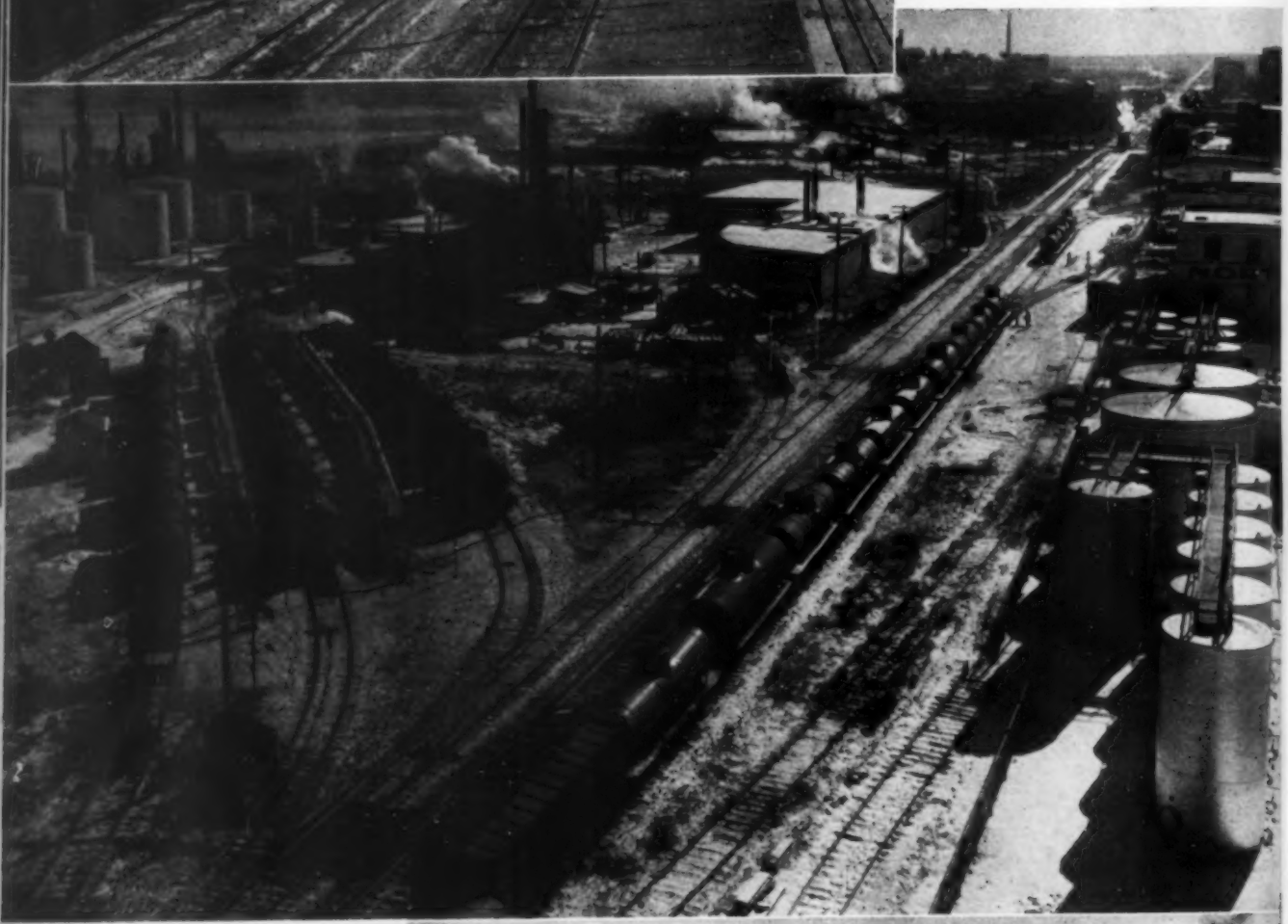
ated gross value of $483,000,000 for the year 1949. That figure is a 7.8 per cent increase over the value of goods made in 1948, and is 128 per cent higher than the 1941 figure. To turn out the goods, 42,500 persons were employed in 1949. The aggregate payroll was $87,000,000. Such figures verify the province's claim that it has emerged as one of the nation's major manufacturing centres. An examination of the factors contributing to that development shows how bright the prospects are for even greater industrial expansion.

Of first importance is the existence of a large trained labour force. Added to this essential, is the fact that Manitoba is richly endowed with raw materials. Ample supplies and sources of low cost hydro-electric power are available. Excellent transportation facilities and a wide-scale rural electrification program are important factors. The trends toward greater efficiency and diversification of industry to meet the needs of growing markets point to continuing growth.

Oil discoveries in Alberta, with exploration work being carried on in Saskatchewan and Manitoba, have attracted the attention of industrialists all over the world. This activity will redound to the benefit of Manitoba as a manufacturing and distributing centre. An immediate benefit will be the expansion of refining capacity within the province and the construction of new refineries. A pipeline to transport oil from Edmonton to Gretna, in Manitoba, is now

Manitoba's large trained labour force produces a great variety of goods. The illustrations show some of the highly skilled and technical workers whose jobs range from garment manufacture to welding. In Manitoba time lost due to strikes was only 3 per cent of the time lost in the whole of Canada.

Part of the 200-acre Union Stockyards in St. Boniface —the largest stockyards in Canada.



Above:—
The oil refining industry is one of many diversified industries in Manitoba which cover a wide and ever-expanding manufacturing field.

Right:—
A section of the Canadian Pacific Railway yards in Winnipeg, the largest privately owned yards in the world.

under construction. When that line is completed it will provide raw materials for new industries and make Winnipeg an important refining centre. And, when considering the benefits of oil development, the enormous resources of natural gas discovered to the west of Manitoba must not be overlooked. Such resources, if made available for use in Manitoba, may well attract new industries of many different types.

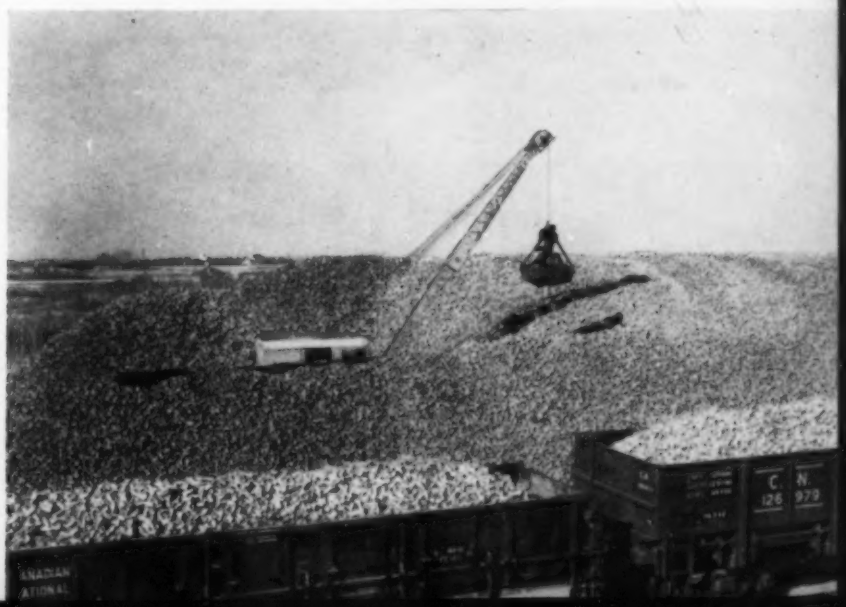
Another recent development in the Dominion that will affect Manitoba's industrial future is the upward revision of freight rates. The higher rates, which inevitably involve varied and far-reaching effects upon the nation's economy, have had the result of making decentralization of industry more attractive to some eastern manufacturers. This is shown by the number of firms establishing, or showing an interest in opening, new branch plants in Manitoba.

Geography has played a major role in building up Manitoba. The province's strategic position makes it the half-way house of the nation's commerce.

Manufacturers looking for an advantageous location naturally turn to Manitoba. Forty-seven new industries commenced operations during 1949, and scores of inquiries were received in the province from firms in the United States and the United Kingdom seeking information so that they might better assess the benefits to be derived from locating in Canada's central province. These queries reflect the growing interest among businessmen in Manitoba as a manufacturing and distributing centre. It is significant that, with over one hundred British agencies established in western Canada in the past year, more than 95 per cent were set up in Manitoba.

People are markets. Hence the greater the population to be served, the greater the market. A glance at Canada's population figures will show that approximately 20 per cent of the nation's people live between the head of the lakes and the Rocky Mountains. This Western Canadian region offers a stable and profitable market to manufacturers situated in Manitoba. The area is a natural outlet for their products.

Further, the province itself constitutes an important market. Its retail sales per capita, for example, are well above the Canadian average. The dollar volume of sales by retail stores in Manitoba, during 1949, is estimated at over $492,500,000—more than double the dollar volume of sales in 1941. Manitoba's per capita retail sales averaged $633.23 or 11 per cent higher than the national per capita average of $571.96, during 1949. The increase in retail sales over 1948 was 9 per cent, compared with the national increase for the same period of only 1.3 per cent. Again metropolitan Winnipeg by itself constitutes a large market. On a per capita basis retail purchases in the Winnipeg district are recognized as the highest in Canada and rank with the United States per capita average of more than $800.



Stockpile of sugar beets outside the plant in Fort Garry which, in 1949, processed 127,000 tons of sugar beets.

Field crops are the basis of many of Manitoba's industries.

The grain elevator at Churchill has a capacity of 2,500,000 bushels.

Manitoba manufacturers also have an Eastern Canadian market which is being expanded. It, too, has become a natural outlet for products utilizing raw materials produced in the province. And to the south lies the rich American market with the same type of consumer demand. If duties on Canadian goods are revised downwards and tariff reductions become general, that potential market will absorb many "made in Manitoba" goods. Within a radius of 500 miles south from Winnipeg are 5,000,000 people eager to buy Canadian goods provided that the quality and the price are right.

Power, however, is probably the real key to Manitoba's industrial growth. The province's water resources have been harnessed by private and government-owned power companies to provide urban and rural areas with electrical energy at low rates. Despite heavy demands imposed on its power plants during the war, Manitoba has never experienced a power shortage. It was expected that with the war's end the consumption of power would decline. Actually, it mounted—another indication of the vigour of continuing industrial development.

Although a power shortage appeared inevitable in recent years, the provincial government acted to avert the shortage. A power site at Pine Falls on the Winnipeg River is being developed at a cost of over $20,000,000. It will be completed in 1952, according to the engineers' estimate. But, if the industrial growth continues at its present pace, further new power supplies will have to be developed in the near future. The government has a plan for the integration of all electrical power sources. In addition, it has entered into negotiations with Ontario, aimed at the development of power sites in the Winnipeg River basin to benefit both provinces.

There is a tremendous source of latent power in the province's numerous lakes and rivers. The present developed and installed power totals 468,700 horse-power. The undeveloped water power, at 80 per cent

Key to industrial growth is water power. The province's water resources have been harnessed to provide electrical energy at low rates.

Interior of a grain elevator in Winnipeg, Canada's grain centre.

The manufacture of flour and feed is Manitoba's second largest industry.

efficiency, has been estimated at over 3,000,000 h.p. ordinary minimum flow, or over 4,000,000 h.p. six months flow.

Meantime, the government is speedily carrying out its extensive program of rural and farm electrification, the largest program of its kind in Canada, if not on the continent. Under this scheme scores of agricultural communities and thousands of farm homes have been provided with electricity. In 1949 alone a total of 5,000 additional farms were connected to the power lines to become customers of the government's power commission. In 1950 another 5,000 farms will be serviced, bringing the grand total of farms equipped with electricity up to 22,000. This not only provides farmers with all the advantages of electrical living, but it enables industry to locate advantageously outside the larger centres of population.

The trend towards locating industries in small communities, away from overcrowded urban areas, became apparent in the United States and to a lesser extent in eastern Canada prior to the second great war. It has been continuing since the war and is now becoming noticeable in Manitoba. About one-third of the 212 new industries set up in Manitoba since the end of the war have been located outside the Greater Winnipeg area.

Rural areas in Manitoba are gradually becoming aware of the benefits to be derived from decentralization of industry. Some are taking positive steps, in co-operation with the provincial government's Department of Industry and Commerce, to try to attract industrialists to locate in rural districts. In the past one and a half years, some thirty-five to forty communities have organized industrial development committees. Industry is beginning to discover that the small town is a good place in which to live, work and prosper.

It is estimated that during 1949 over $21,500,000 of private capital was invested in new and expanded manufacturing plants in Manitoba. This figure is approximately

Manitoba highways open the way to beautiful countryside, busy cities and towns, and large mining developments in the province.

44 per cent of the total capital and replacement expenditures made in the prairies. In the past ten years, one-quarter of the new industries commencing operations in the province have been set up in rural areas.

The industry-minded towns and cities strive through conservative assessment policies and fair tax valuations to encourage industry to select a Manitoba site. The gross debt of municipal governments has been greatly reduced. Between 1940 and 1949, the province's net funded debt has been cut 29 per cent. Industrialists and manufacturers settling in Manitoba find a favourable tax structure. Provincial taxes, per capita, excluding the liquor tax, are the lowest in Canada. There is no provincial income tax, no provincial railway taxation, no inheritance tax, no sales tax, and only a five per cent corporation tax. The gasoline tax of nine cents, is, along with Alberta's, the lowest in the Dominion, and the motor vehicle licence tax is among the lowest.

The province has a safety responsibility law designed to check reckless driving and to reduce accidents. In the event of an accident, this law ensures that the party injured at the hands of a negligent driver receives compensation. The law has served as a model for other provinces and for American states in drafting similar legislation to cope with mounting traffic accidents. It is only one example of the progressive legislation put into operation by Manitoba administrations.

Fortunately for the province its governments have kept pace with the industrial expansion. A Department of Industry and Commerce was formed and has been instrumental in encouraging manufacturers to locate new plants in Manitoba, or to have their products partially made or assembled in the province. In the summer of 1949 its representatives toured the United Kingdom contacting industrialists and exploring the possibilities of attracting branch factories to Manitoba. Since then six British industrialists, within the space of six months, have visited the province to make on-the-spot examinations of its potentialities and advantages in relation to their own plants.

Consistent with its action and purpose in creating a separate Department of Industry, the provincial government has developed and pursued policies that are conducive to greater industrial growth. Manitoba's administration seeks to encourage free enterprise and private initiative within reasonable bounds. Its laws and regulations are favourable to business, at the same time providing a fair deal for labour.

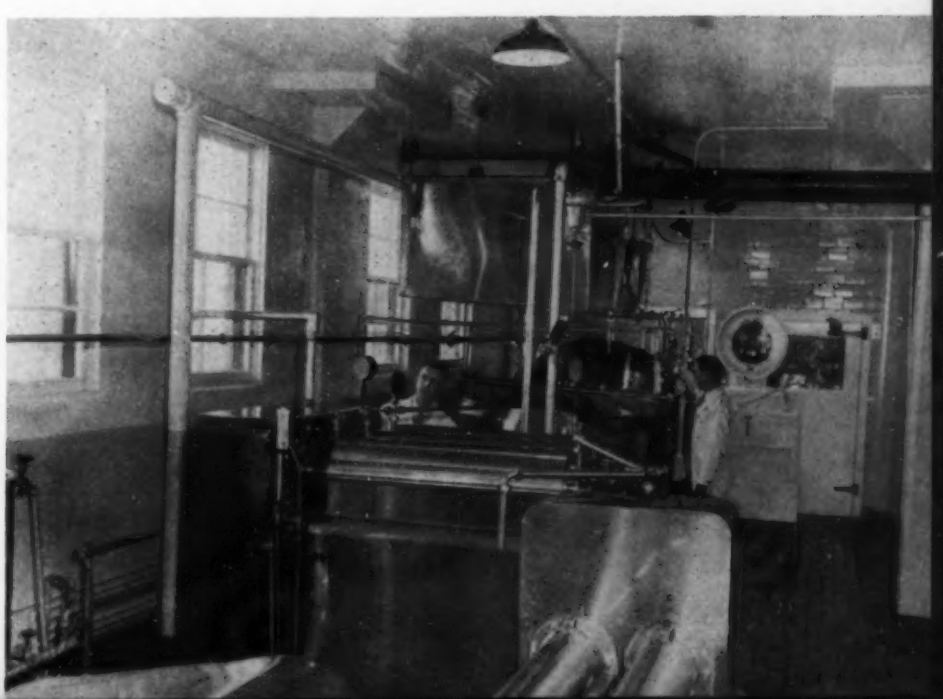
It is a function of the government department to aid and encourage the expansion of small industries and business. Big business,

Prepared poultry follows the trend towards marketing of pre-packaged, ready-to-serve foods.

A meat packing plant. The slaughtering and meat packing industry is the province's largest producer in terms of the value of production.

the department's officials point out, is able to utilize outside consulting services in bettering production, cutting transportation costs, and developing sales. The cost of such services is too great for some small firms. Accordingly, the government has assisted over 800 businessmen in the past year by providing advice and counsel on different phases of management. A recent move along this line was the publication by the government department of a series of management aid bulletins compiled with the help of experts.

Manitoba's labour laws, too, are worthy of mention. They are an example of how government can help industry by promoting good labour relations. Labour and management are working together as a team under the Manitoba Labour Relations Act, which is modelled after the federal labour code. The small amount of time lost from strikes illustrates the good employee-employer relations prevailing in Manitoba. Figures compiled by the Department of Labour at Ottawa for 1948 show only two strikes that year. Manitoba's record in that respect,



A modern plant, fully equipped with the latest machinery, which produces margarine.

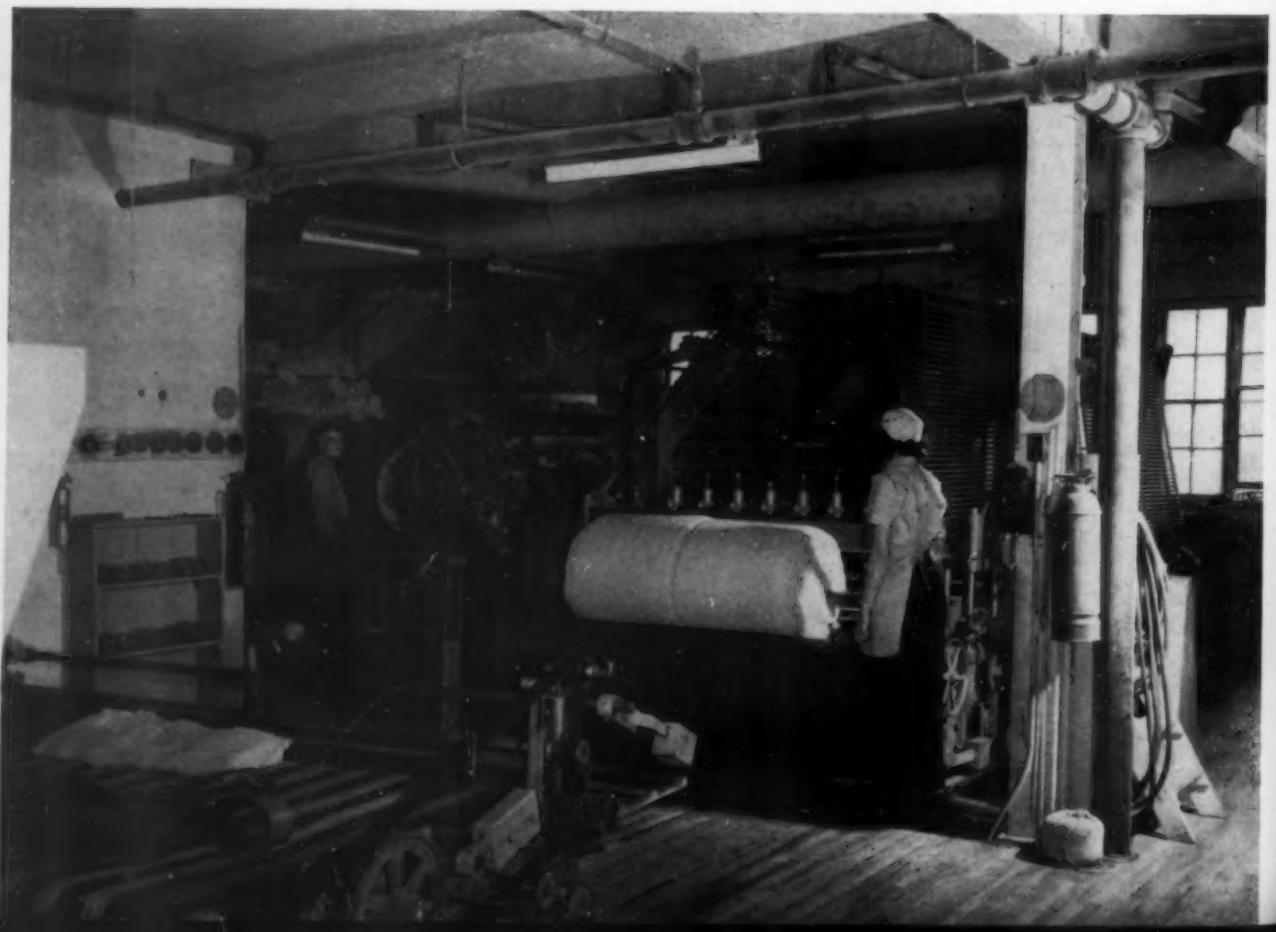
viewed either by itself or in comparison with conditions elsewhere, stands in a most favourable light.

To run its industries, Manitoba has a well-trained labour force. For training purposes, the province provides new composite high school and technical vocational school courses. This system, a bold new venture in the educational field, has won praise from authorities in the United States and is being watched closely by Canadian education organizations. It provides students with a sound general education and opportunities for vocational training. To ensure practical industrial integration, intensive post high school training in the industrial arts is offered by the technical institute operated in Winnipeg under the auspices of the provincial Department of Education, in conjunction with employers. The University of Manitoba also provides students with practical training for various industrial fields and professions. Many business firms in the province make use of the research and testing facilities available in the faculties of engineering, science and agriculture.

One of the largest organized labour forces in the province are the railwaymen. Both the Canadian Pacific and Canadian National Railways, Canada's transcontinental lines, have their western divisional headquarters and maintain engineering works in Greater Winnipeg. The C.P.R. yards, alone, cover 1,220 acres with a total capacity of 25,000 cars. On the average, close to 6,000 incoming and outgoing freight cars are handled daily, while more than 125 trains arrive and depart every 24 hours at Winnipeg depots. The province is connected with the United States by direct railway service daily via the Northern Pacific and Great Northern Railways.

Manitoba holds the leading place among the western provinces in the number of miles of surfaced highways. During 1948 and 1949 over $13,000,000 was spent on highway construction, and millions more are to be expended before the end of 1950. Twenty

Manufacturing mattresses in a Manitoba bedding and furniture factory.



Manitoba apparel manufacturers produced thirty million dollars worth of goods in 1949, making the apparel industry the third largest in the province.

thousand miles of improved highways provide a network over which transportation companies despatch their trucks and buses daily. Plans were completed early in 1950 for Manitoba, with the federal government's financial help, to work towards the completion of its portion of the trans-Canada highway.

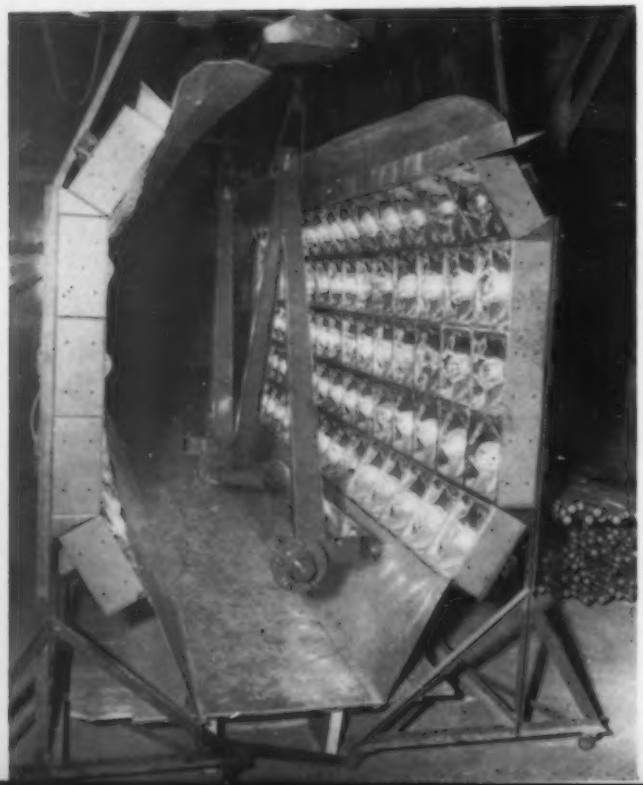
The province is also a centre of the Dominion's great air transport industry. Winnipeg is a Trans-Canada Airlines headquarters, an operational point for Northwest Airlines, Central Northern Airways, and the operation and maintenance headquarters of Canadian Pacific Air Lines. Several charter airlines fly out of Winnipeg, providing speedy transportation throughout the far northern areas of Western Canada. Stevenson airfield in Winnipeg is one of the most modern and most important air terminals in Canada; located in close proximity to the business district of Manitoba's capital, it can be reached in twenty minutes by car or bus.

Manitoba has the distinction of being the only prairie province with a seaport. Canada's most central ocean port, at Churchill on Hudson Bay, provides the shortest sea route between Europe and the centre of the North American continent. Recently, marine insurance rates for cargo vessels sailing to Churchill have been reduced, and efforts are under way to increase the tonnage of cargo shipped both into and out of the Hudson Bay port.

Because of its geographic position, Manitoba is at the crossroads of Canada's commerce and travel. The combination of railway and bus lines, terminals and warehouses, airports and highways, provides an intricate but free flowing network of transportation arteries. To industry these facilities mean strategic mobility—quick receipt of raw materials, and speedy, economical delivery of the finished product.

It has already been stated that industrial production now exceeds agricultural output in gross value in Manitoba. But this does not mean agriculture is no longer a vitally important part of the province's economy. Far from it. Agriculture always has been and remains the solid basis upon which the industrial structure has been built. Farm products provide the basic materials for the major part of the manufacturing industries. For example, meat packing is the largest single industry—with production values exceeding $100,000,000. There are, also, the flour and feed mills, the dairying, malting, vegetable canning and sugar refining industries, to mention only a few based on agriculture. Vegetable canning is, in Manitoba, a com-

The manufacture of insecticides is a part of the prosperous chemical industry of the province.



An important contribution to both agriculture and industry is the manufacture of agricultural implements. Shown here is an infra-red paint baking oven.

paratively new industry. The sugar beet industry has become a highly important one, contributing nearly a million dollars to the annual farm income.

The agriculture industry in Manitoba is the most stable in Western Canada, because of the diversified forms of farming, the dependable precipitation, and the fertility of the soil—soil that produces great wealth. The wheat yields alone, in recent years, have exceeded the fifty-million-bushel mark. Manitoba wheat has become the standard for hard wheat the world over. All Western Canadian hard wheat is graded on the basis of Manitoba No. 1 Northern.

Just as Manitoba has been fortunate in possessing an abundance of rich black soil, so it has been well endowed with mineral resources. The past twenty years have seen mineral production become an increasing

Unloading lumber. In 1949 Manitoba's forestry production was valued at $17,500,000.

source of new wealth. The famous Precambrian Shield, covering most of the northern part of the province, is the locale of rich metal deposits. Extending over 140,000 square miles, it embraces 57 per cent of the province's total area. Copper, gold, zinc, cadmium and silver are the principal minerals produced. Many others offer commercial possibilities. Claims being recorded in the past two years continue well above the average, indicating that prospecting activity is proceeding at a fast rate, with considerable exploration and development. The search for oil and natural gas is in progress in southwestern Manitoba.

Forest resources make a notable addition to the province's natural assets. Forty per cent of Manitoba is wooded. There is a total stand of nearly 2,700,000,000 board feet of saw timber, and 28,700,000 cords of smaller wood. The value of primary forest production in 1949 reached an all-time high of $17,500,000. The forest industry, in addition, supports numerous secondary industries in the wood products manufacturing line.

Canada's second largest inland fish industry is found in Manitoba—surpassed only by Ontario in the production of fresh-water fish. The province takes fourth rank in the production of raw fur pelts. The value of furs produced in 1947-48 was roundly $5,500,000. And out of the fur pelts come fur coats for milady. Manitoba has become an important fur processing province. The principal products are finished pelts and fur garments, which are sold across Canada. Seventy-five per cent of all fur coats worn in Western Canada are made in Manitoba. Fur manufacturing is part of the large needle trades industry that has grown up in Win-

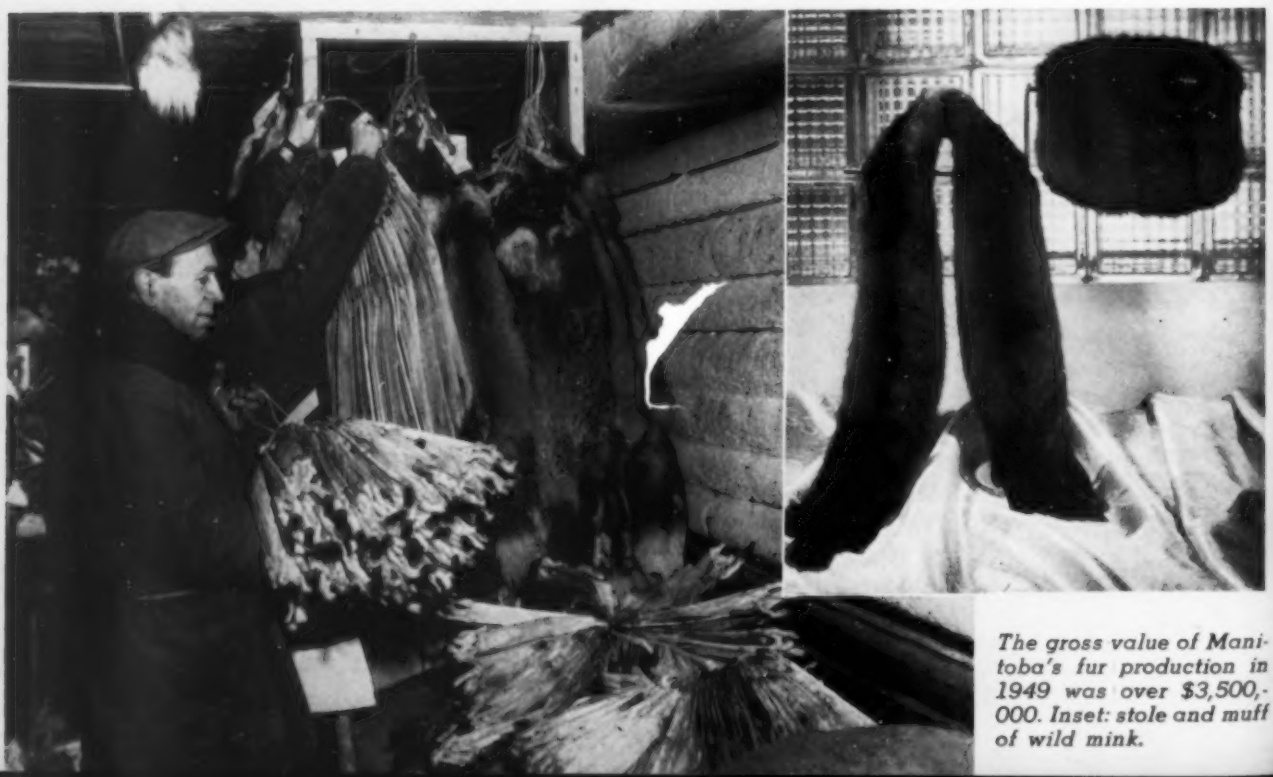
nipeg, with nearly 200 firms now engaged in producing garments.

Great as has been Manitoba's industrial development, there is room for many more industries. Studies are being made to determine the new industries for which the most promising openings and opportunities exist. Initial findings suggest that among those which lend themselves to establishment in the province are the following: men's suits and overcoats; handbags; bedroom and dining room furniture; domestic refrigerators; coal and wood stoves; gas stoves; paper cans; packers' tin cans; glucose and dextrose; electrical conduit and rock wool insulation. Industries already located in the province which have expanding markets readily available include: canned vegetables; electrical appliances of all types; prepared breakfast foods; women's shoes; leather boots and shoes; pharmaceuticals; toilet preparations; kitchen furniture; upper shoe leather; mixed paints; and agricultural implements and parts.

One of the most encouraging factors pointing to an even brighter industrial future for Manitoba is the amount of new capital being invested in plant, equipment and housing projects. Construction contracts awarded in Manitoba in 1949 totalled approximately $77,500,000. Of this total, $25,000,000 was for residential construction; $16,000,000 for business construction; $7,500,000 for industrial construction; while $29,000,000 went into engineering construction.

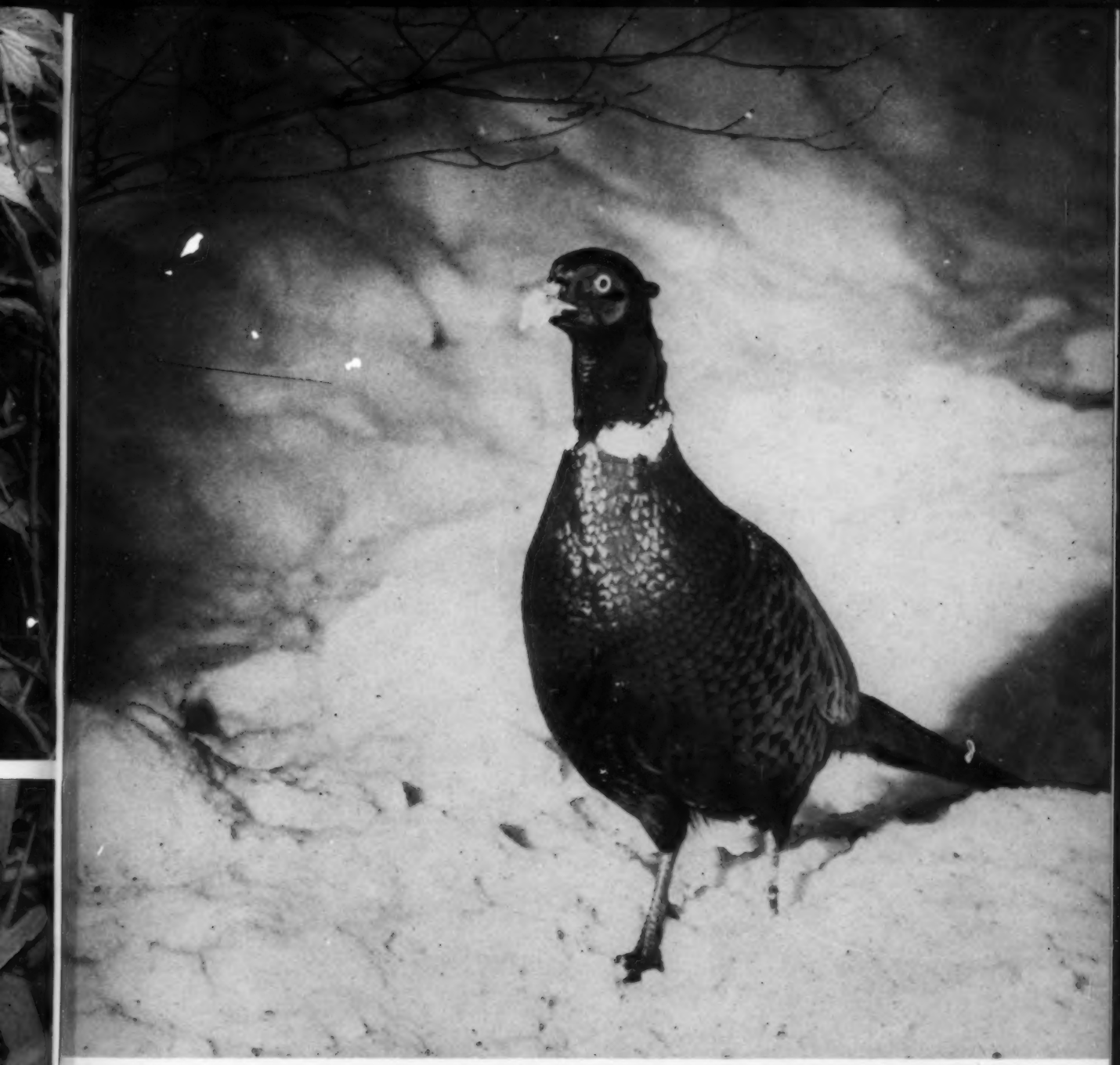
Manitobans are confident that, industrially, their province will continue its rapid development until within the next decade an even greater proportion of Canada's manufacturing will take place within its borders. Their optimism is no idle dream. It is based on facts and factors pointing to a continued industrial growth in Canada's keystone province. Among such facts and factors are Manitoba's strategic geographic location, combined with its hinterland of rich and varied natural resources, its abundant low-cost electrical power, its large rural electrification program, its skilled labour force, harmonious labour relations, its stable primary industries providing a solid base for secondary industries and, finally, the trend among large Eastern manufacturers towards decentralization, coupled with an increasing awareness on the part of industrialists of the prospects in Western Canada.

Assuredly, Manitoba has a bright industrial future.



The gross value of Manitoba's fur production in 1949 was over $3,500,000. Inset: stole and muff of wild mink.

Manitobans, with all their industry, find time for relaxation—on beaches and highways, golf courses and lakes. They live in well built modern houses and enjoy municipal parks.



BIRD SERIES — PART XIX

Photographs and Notes by W. V. CRICH

RING-NECKED PHEASANT

Phasianus colchicus torquatus

THE Ring-necked Pheasant was introduced into North America from Europe and is now quite abundant in the United States and in the southern part of Canada. It is propagated in Ontario by the Department of Lands and Forests, and birds and eggs are shipped to farmers and sportsmen throughout southern Ontario. There are now enough for a short open season in the autumn, when hundreds of birds are shot.

It roosts usually on the ground, but sometimes in trees in order to escape prowling enemies. The nest in the photograph was a hollow in the leaves under some wild raspberry bushes. Pheasants are "close" sitters and will not flush until absolutely sure that they are detected. For this reason, it was fairly easy to obtain a good photograph. The female is so protectively coloured that it is almost impossible to detect her until she is almost underfoot; then, with a startling whirr, she is away and out of sight. The eggs are usually a rich, olive brown; and the set, when complete, may have as many as 15 eggs.

The nest containing the young, just hatching, was found in a cat-tail marsh surrounded by water. Not twenty feet away was the occupied nest of a Marsh Hawk. It was the latter that had taken me into the marsh, and I had passed the pheasant several times without her giving her presence away.

In order to survive either here or in its European home, this beautiful game bird requires aid in the form of strict protection and winter feeding. The male bird was lured to face the camouflaged camera by means of grain scattered in the snow. It was a bitterly cold day, and snow is seen frozen around the beak of the bird.

RUFFED GROUSE *Bonasa umbellus togata*

THE Canada, or Northern, Ruffed Grouse is considered by many to be "the King of the game birds" in those sections of its range where it is hunted. The Ruffed Grouse is a bird of the heavily timbered regions, and it has suffered much from the cutting of our forests. It has gradually been forced farther north where food is not so plentiful and winters are more severe.

The nests are hollows in the ground where the fallen leaves lie thick. The nesting site is generally under a fallen tree or close beside some stump, although it may be carefully concealed among the radiating shoots of some bush or shrub. The bird is a very close sitter and will not flush until there is no doubt in her mind that she is about to be discovered. Then, with a whirr of resonant wings, she disappears from sight, causing an updraft of air which stirs the leaves. Enough of these falling on the eggs, conceal them from human sight.

The nest may contain from eight to fifteen eggs when the clutch is complete. They are brownish buff in colour and generally unmarked; if they are spotted it is only faintly, and the spotting is in brown also.

The female incubates the eggs, for a period of about three weeks. She is unassisted in this by the male, and when she leaves the nest to search for food the eggs are unattended for a considerable time. The photograph of the female settling herself on the eggs was obtained from a hide placed four feet in front of the nest. Around five-thirty each afternoon she left the nest of her own volition to feed, and remained off the eggs for about three hours each time. The last hour was spent just a few feet behind the nest on a fallen log, preening her feathers and stretching her wings before assuming her duties on the nest. In spite of this chilling all the eggs hatched successfully.

The Ruffed Grouse is a devoted mother who will protect her young heroically. One of them, out teaching her tiny progeny how to scratch and hunt for insects among the fallen leaves, was suddenly confronted by—me. The young immediately scattered, while the mother, the picture of rage, hovered near by. I leaped forward, hoping to catch a chick for closer observation, but I never reached it. Without any hesitation the mother flew straight for my face; and by the time I had recovered my glasses from the ground, and myself from the surprise of the attack, she was already a considerable distance away.

SLATE-COLOURED JUNCO

Junco hyemalis hyemalis

THE Slate-coloured Junco is smaller than the House Sparrow. It is a dark slate-gray on its upper plumage and breast. It has conspicuous white outer tail feathers and white belly. Its bill is pinkish. The females are duller than the males in spring.

It breeds as far north as the tree limit in Canada and as far south as Northern Minnesota, Northern Michigan and Maine, and also in the mountains of Pennsylvania. In the winter it is found from Southern Ontario to the Gulf of Mexico.

I saw a flock of these trustful little winter visitors last winter in the brush along a weedy ravine. In keeping with the day—"leaden skies above and snow below"—their attire was in perfect harmony.

As the wind rushed up the sides of the ravine, it shook tiny seeds from dry "pepper box" seed vessels on to the clean white napkin spread beneath. The Juncos smacked out their sharp "chip, chip", and fell to the banquet spread before them with great gusto. Each seed was cracked before it was swallowed. They scratched in the snow like young chickens, using both feet at once. When their little feet got cold, they would lift them one at a time to their breast feathers for warmth, or hop on to a twig for a moment, where they would emit a loud, sweet warble. One of them had a withered foot, possibly as a result of having been frozen, and only with great difficulty managed to balance itself in the loose snow.

Suddenly all the Juncos "froze", or remained motionless, with their heads tilted upwards and their gaze fixed. I sensed a hawk, but it was only a noisy red squirrel in an adjacent elm.

After finishing each little crumb, they were off like a flash, showing their "banner marks"—two conspicuous, white outer tail feathers. This mark is thought by some naturalists to be a signal to the rest of the flock so that they may keep together, or a signal for their young to follow. Of course there are other theories as to the value of these "flash colours"

EDITOR'S NOTE-BOOK

William Austin Squires was born in Fredericton. He graduated from the University of New Brunswick and his post-graduate studies were conducted at the Ohio State University where he specialized in zoology and botany. After employment with the Department of Agriculture and teaching at the University of New Brunswick and in the public schools he joined the staff of the New Brunswick Museum in 1939 as Curator of the Natural Science Department. Mr. Squires has devoted many years of study to the bird and animal life of his native province and the results of his research are recorded in various scientific journals.

* * *

Operation Fiordland is based on material compiled by the Government of New Zealand and made available to the Society through the courtesy of the High Commissioner for New Zealand. The second part of the pictorial story of this expedition will follow.

* * *

Victor J. Mackie was born in Moose Jaw, Saskatchewan, and educated in the schools and university of that province. He entered newspaper work as a cub reporter on the Moose Jaw *Times-Herald*, later joining the staff of the Regina *Leader-Post*. Mr. Mackie specialized in political writing. Transferred to the Ottawa bureau of the Winnipeg Free Press and associated newspapers, he was a member of the Parliamentary Press Gallery for three years. He has crossed Canada many times in the course of his duties and is now on the editorial staff of the Free Press in Winnipeg. Mr. Mackie gives commentaries for the C.B.C. and has published numerous articles in Canadian and United States publications.

Detach and mail to: Canadian Geographical Society, Ottawa, Canada.

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AMONGST THE NEW BOOKS

Earth Waves

by L. Don Leet

(Harvard University Press; John Wiley & Sons, Inc., New York, $3.00)

Dr. Leet's latest book, No. 2 in a series of Harvard Monographs in Applied Science, deals entirely with the subject of seismology, both theoretical and applied. After the mathematical theory of seismographs is developed, the instruments themselves are discussed in some detail. The new Leet seismometer is explained together with other station and prospecting instruments. The book then proceeds to deal with the observed waves recorded. All the usual waves, P, S and surface, are mentioned and an introduction is made to two recently observed surface waves. The mathematical theory in this section is stated in its final form. Illustrations and examples are used here and throughout the book to make the text very clear. Wave paths of various seismic rays, incident, reflected and refracted, are drawn. The travel time curves are deduced for seismic waves recorded from earthquakes and explosions. An interesting section is included on the appearance of seismograms recorded at all distances from the origin of the disturbance. The controversial subject of microseisms makes the final chapter very interesting from the point of view of a neutral observer.

(*Continued on page XIV*)

CANADIAN SOCIAL SCIENCE RESEARCH COUNCIL

Pre-Doctoral Fellowships

The Canadian Social Science Research Council has received funds from the Rockefeller Foundation which enables it to offer a number of pre-doctoral fellowships. The value of the fellowships normally ranges from $750 to $1,500.

General Conditions of Award

1. Candidates must have completed at least one year's post-graduate work before making application, preferably two years. Other things being equal, preference in awarding fellowships shall be given to candidates who thereby will be enabled to complete their post-graduate program.
2. A fellowship may be awarded to enable a candidate either to continue his post-graduate study at an approved institution or, if the formal work required for a higher degree has been completed, to enable him to complete his thesis.
3. The number of fellowships available for any given academic year shall be determined by the Committee. Nine have been awarded in 1950. It is not contemplated that a fellowship will be awarded a second time to the same person.
4. Candidates will procure from the Secretary of the Council six copies of the application form. These must be filled out and returned by January 10, 1951, supplemented by an official transcript of undergraduate and post-graduate record, and a personal letter setting out the candidate's plans for the future.
5. Awards shall be announced not later than March 31, 1951.

John E. Robbins,
Secretary,
Canadian Social Science Research Council,
166 Marlborough Avenue,
Ottawa, Ontario.

September 1950.

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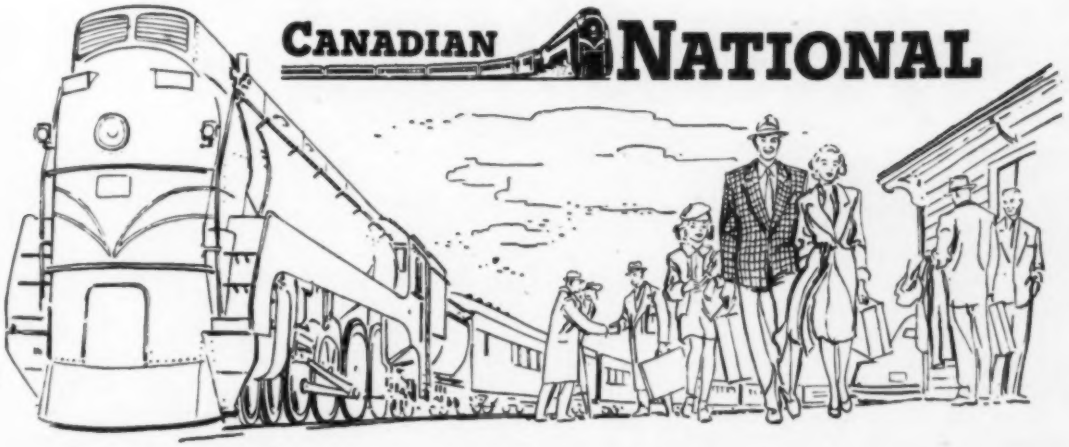

(*Continued from page XII*)

Dr. Leet's book is a basic reference for seismologists who have had a general mathematical background and who wish to acquaint themselves with some of the more recent advances in the subject.

W. G. MILNE

* * *

The Canada Year Book 1950

(The King's Printer, Ottawa, $2.00)

The 1950 edition of this book which is essential to all who deal with the factual basis of Canada's progress and development is now available. Statistics are clarified by charts, illustrated by maps, and relieved by interesting specialized articles. And the whole is copiously indexed. For the first time, Newfoundland data are included and since figures available are not comparable with those for other provinces, special sections for Newfoundland have been added in the appropriate chapters. Features of particular topical interest include up-to-date articles on the iron ore resources of the Quebec-Labrador region and the titanium deposits of Quebec. Of historical interest is an article on the influence of the Royal Canadian Mounted Police in the opening up of Western Canada.

A limited number of paper-bound copies of the Year Book is available to bona fide teachers, university students and ministers of religion from the Dominion Statistician, Dominion Bureau of Statistics, Ottawa. The regular cloth-bound copies are supplied by the King's Printer.

This is Australia

Produced and edited by OSTWALD L. ZIEGLER

(MacMillans, Toronto, $12.50)

Canadians have always been interested in the sister Commonwealth, and the interchange of the war years have greatly stimulated that interest. Still ringing in our ears is the song(!) of the kookaburra which introduced the broadcasts from Australia and New Zealand for their service men and women in Canada. There is a strong desire to know more of this island continent, so different from our Dominion in its geographical situation, its remarkable range of plant and animal life, and of its achievements in national development.

In this beautifully produced book is presented a clear picture of "Australia today", a century and a half after the commencement of white settlement. The editor has brought together a mass of splendidly organized material to which the federal and state governments have contributed abundant and authoritative articles, lavishly illustrated by photo-engravings, photographs and colour plates. The effect produced by fine Australian inks in black and brown on "papyrus art" papaer, especially in the charming symbolic drawings and the artistic arangement of the pictures is very agreeable.

The introductory chapter "Came a colonist" tells the romantic story of the early discoveries and colonisation of "Terra Australis", a strange land, peopled by primitive aborigines and where there existed amazing types of flora and fauna unknown on any other continent. With

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the third chapter the history is continued, particularly the rise and development of the great cities. Sydney, Melbourne, Adelaide, Perth, Brisbane, Hobart and Canberra. There follow detailed descriptions of all the multifarious activities of a young and stirring nation, her cultural life, educational facilities, sport, radio, health, the press, finance and banking, water supplies, and so on. Her manufacturing industries have a chapter to themselves, as has the transport system. "Pastorale" and "Rural Harvest" provide an immense amount of information on the country's agriculture and fruit production, the latter a rich asset, ranging from the apple orchards of Tasmania, the vineyards of Victoria, New South Wales and South Australia to the tropical fruits of Queensland. The story of the rare and valuable trees to be found in the Commonwealth and their innumerable uses in the timber industry is followed by the history of Australia's famous mine fields. They are discussed in detail, state by state, an admirable method employed in many other sections of the book, most attractively, perhaps, in "Going Walkabout", which portrays tourist and holiday resorts and the many and varied opportunities for big game hunting and fishing.

The concluding chapters are devoted to a survey of war activities and movingly describe the glorious part played both at home and abroad by Australian men and women, picturing also the sojourn, among this hospitable people, of Canadians, Americans and other nationals, who came to help in the defence of this "outpost of Empire". Finally there are set forth, with all the necessary facts and figures, the possibilities and the plans being prepared by the Government for repatriates and new settlers.

In all the four hundred pages of this magnificent book one can find only four maps, the first an outline showing states and capital cities, and three diagrams indicating respectively, the wheat areas, the vegetation and the rainfall. A study of these maps reveals in a striking way the tremendous handicaps met with in production in a land situated in the driest belt in the world and emphasises the marvellous success attained by the application of science and enterprise. A comprehensive topographic map, however, and a much fuller index would add greatly to the enjoyment of the reader. No doubt these will appear in a future edition.

F. E. Forsey

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Elephant Bill

by J. H. Williams

Illustrated by photographs and maps
(Clarke, Irwin & Co. Ltd., Toronto, $4.25)

Lieut.-Colonel Williams, who spent over twenty years in the jungles of Burma, was "Elephant Adviser" to the 14th Army. In this book, which has a foreword by Field-Marshal Sir William Slim, he tells the story of his adventures during World War II and gives a vivid account of the elephants and their riders who labour in the great teak forests.

With the full knowledge of an expert he describes the health, temperaments, habits, sex-life, and control of the great animals which he considers to be the most lovable and sagacious of all beasts. It is interesting to note how climate and geographical environment necessitate such different methods of transport for the teak of Burma as compared with the great trees of Canada. In a year, an elephant will deliver one hundred tons of timber from stump to a floating-point in a creek.

The book is full of anecdotes illustrating how varied are the elephants' achievements and how they are always learning. We are told that an elephant will extract a pill (the size of an aspirin tablet) from a tamarind fruit in which one has planted it with an air of saying "You can't kid me!".

We learn that many young elephants develop the naughty habit of plugging up the wooden bell they wear hung round their necks with good stodgy mud, so that the clappers cannot ring, in order to steal silently into a grove of cultivated bananas at night. Here they will eat not only the bunches of bananas but the leaves and indeed the whole tree as well, and they will do this just beside the hut occupied by the owner of the grove without waking him or any of his family.

The writer's enthusiasm, humour and keen observation make this a most interesting, fascinating study of the life story of the elephant. P.R.B.

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